

Analysis of predictors of response to hormonal therapy in children with treatment naïve West syndrome



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INTRODUCTION

- Gold standard of treatment for West Syndrome has long been hormonal therapy
- Only 50% to 70% of children respond to it, and 30% to 40% relapse

OBJECTIVES

- To predict response to hormonal therapy (ACTH/oral steroids) in children with treatment naïve West syndrome with clinical features, EEG features, Functional connectivity on fMRI, Serum IL-1b and IL-1RA levels

MATERIALS & METHODS

- Study design: Observational pilot study
- Study Period: July 2020 to June 2022
- Period of observation and follow up: 12 weeks

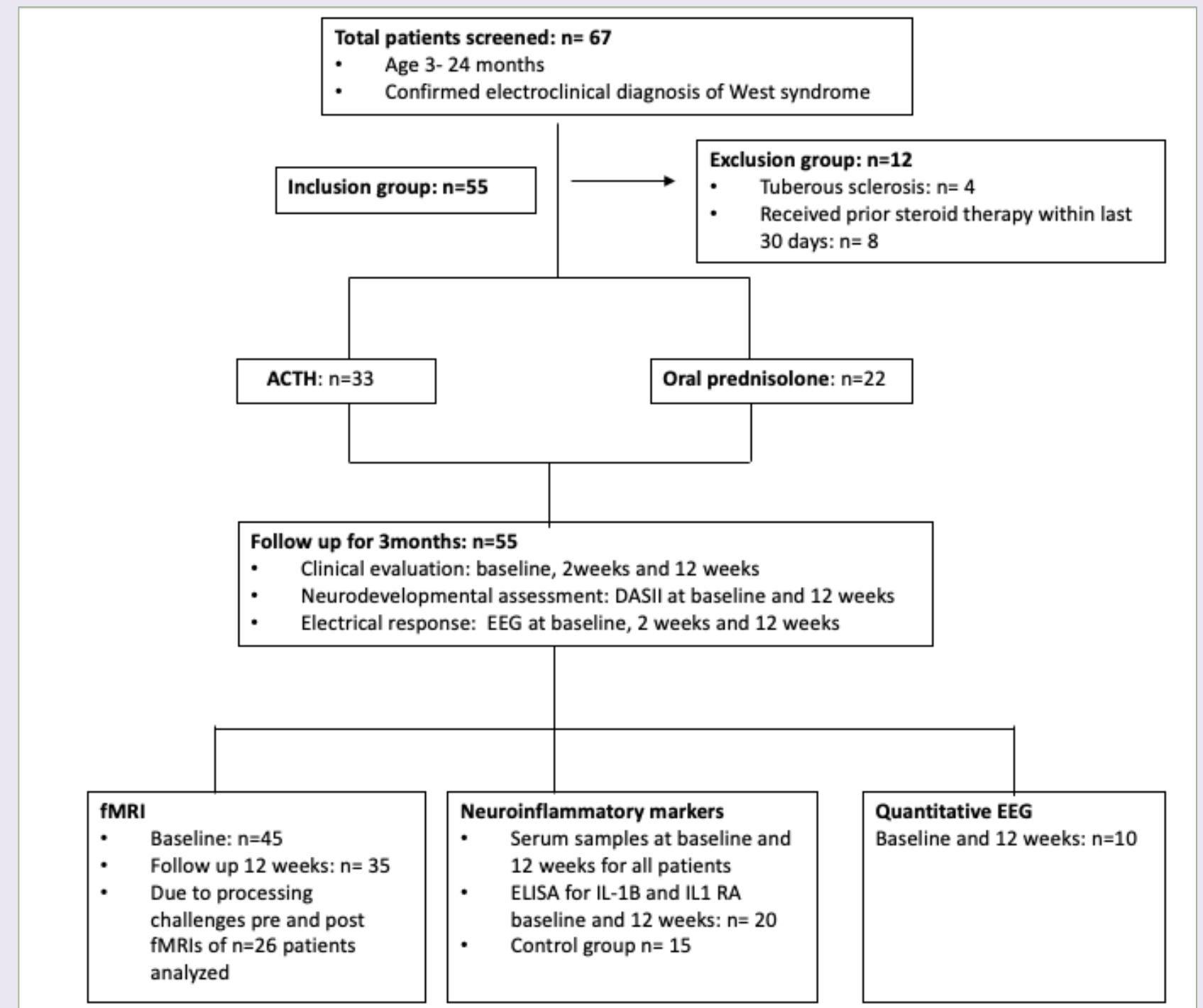


Fig 1: Study Flow

RESULTS

- Complete electroclinical resolution was predicted by the baseline BASED (Burden of Amplitudes and Epileptiform Discharges) score of 3 (p value: 0.018)
- There was trend towards higher delta power among non-responders (Fig.2, 3 and 4)
- On functional neuroimaging there was significantly increased functional connectivity among the group that was resistant to treatment (Fig. 5)
- Receiver operating characteristic curve of baseline BASED score to predict non responders and relapse shown in (Fig.6)
- There was no significant difference in baseline mean values of IL1 β and IL-1RA among responders compared to non-responders.

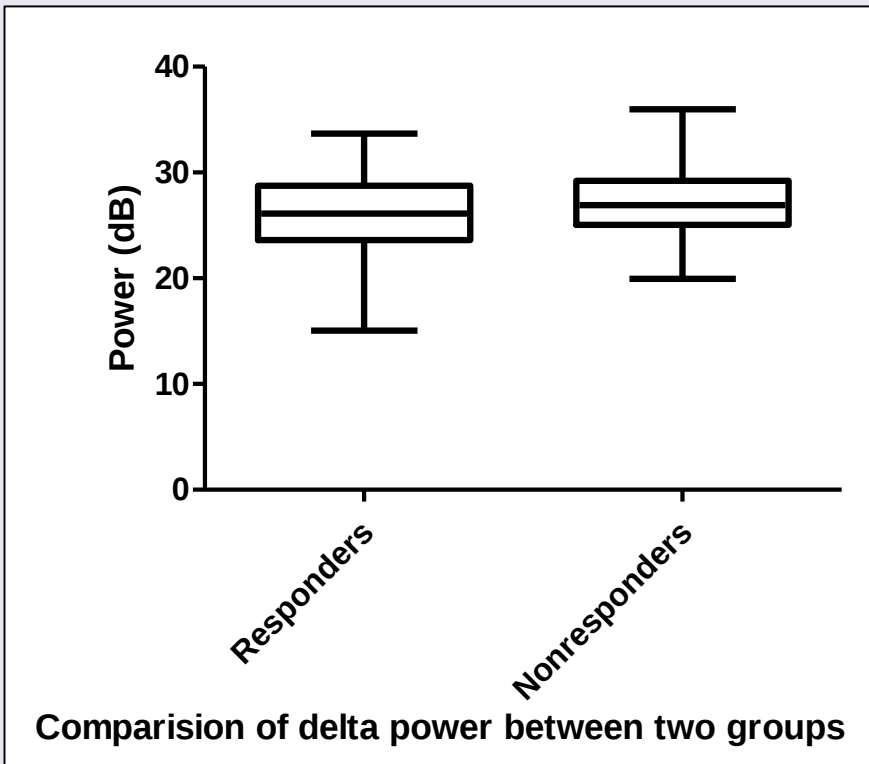


Fig 2: Comparison of Delta power

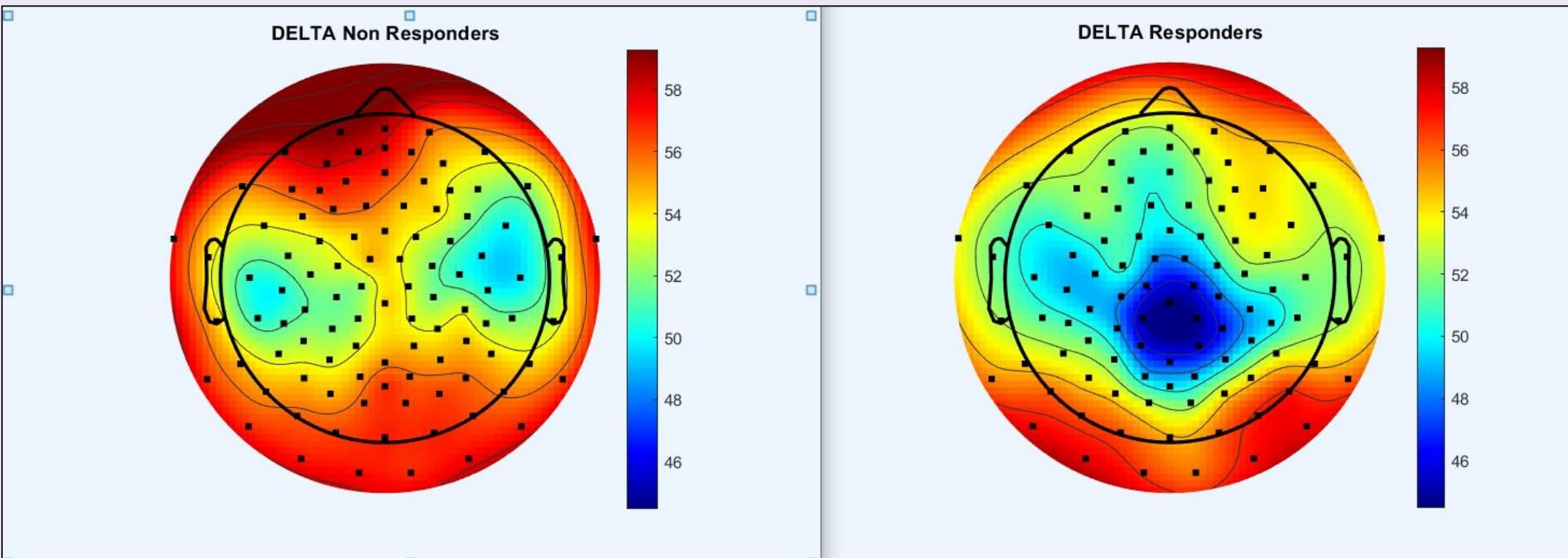


Fig 3 & 4: Spectral power among responders & non responders

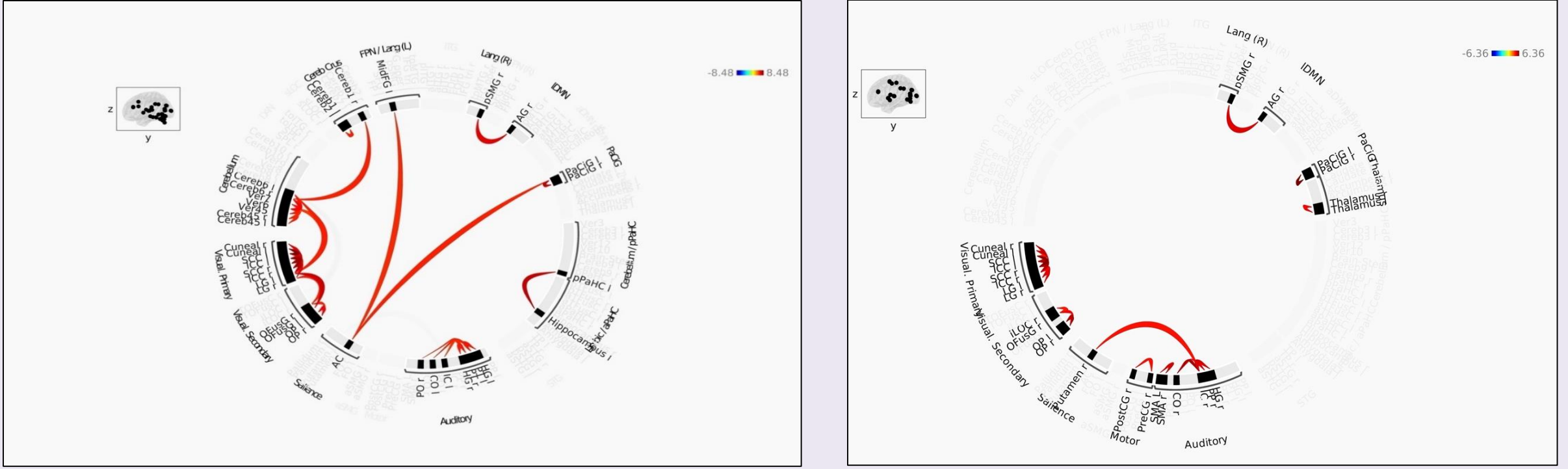


Fig 5: Functional connectivity of Non-Responders (5a) vs Responders (5b) at baseline

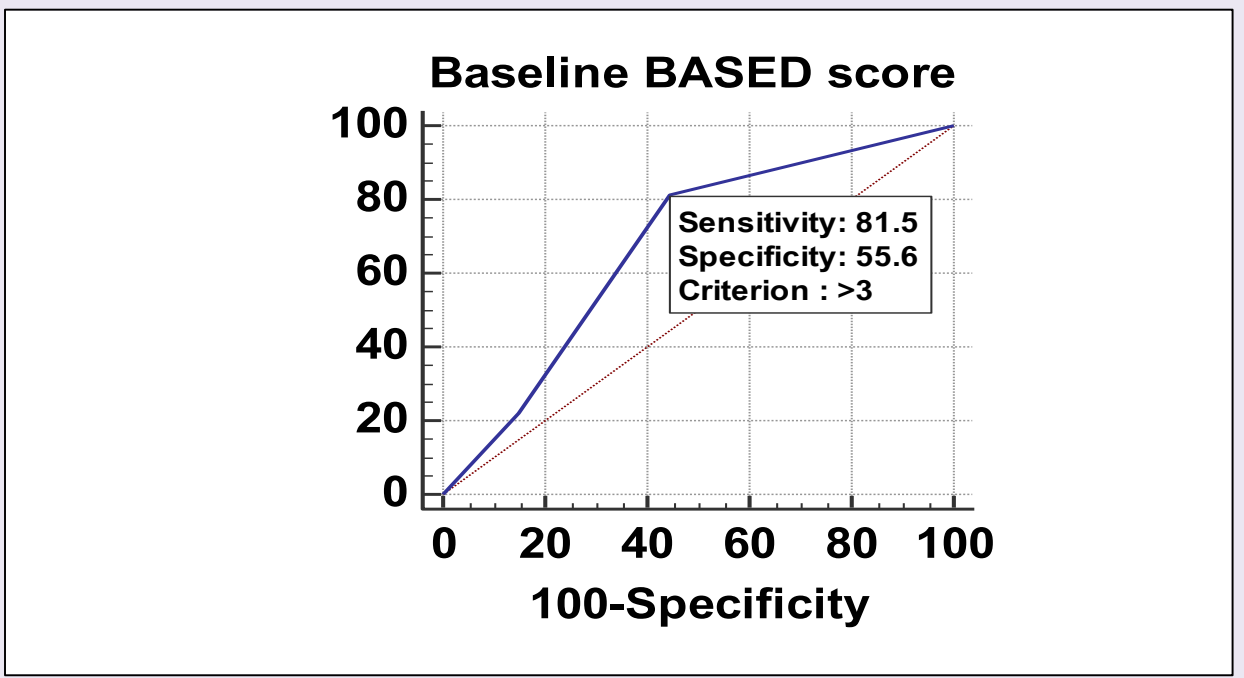


Fig 6: ROC curve BASED Score

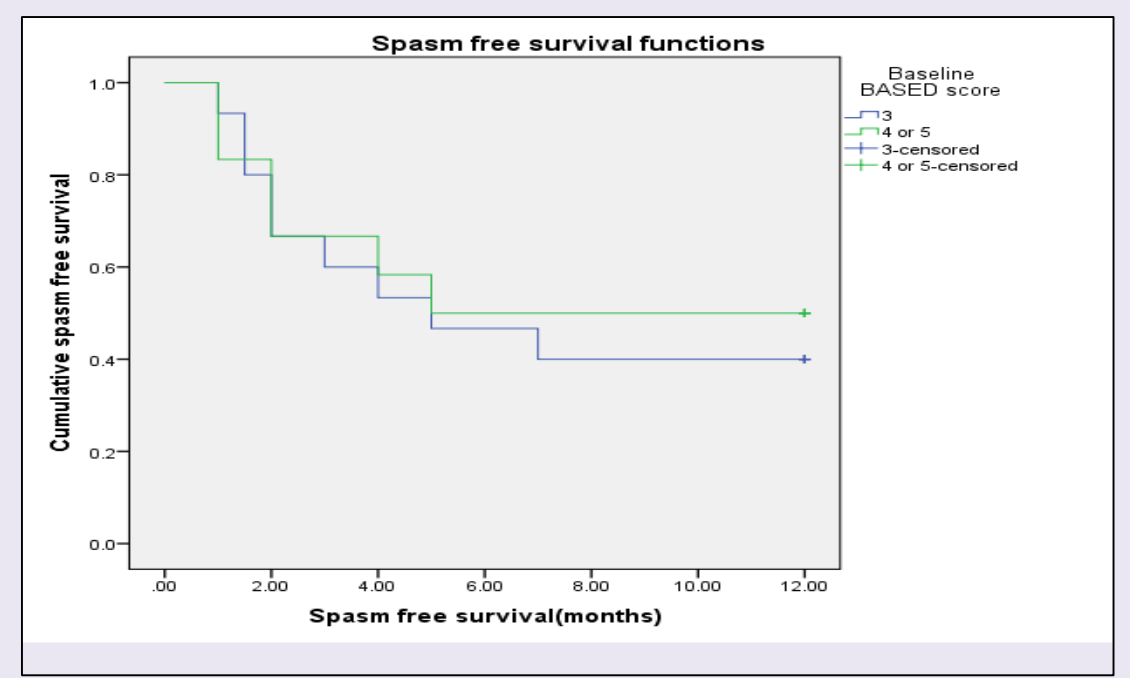


Fig 7: Relapse free survival curves

DISCUSSION

Clinical Predictors

- Multiple modes of insult was quite common in non-responder group (52.1% vs 34.6 %)
- Lag time in months is a predictor of overall poor response

EEG markers

- Grouped Multifocal Spikes and Paroxysmal Voltage attenuation had significant association to response representing different epileptic networks
- BASED score of 4 or 5 may represent evolved stages
- Relapse free survival was higher in BASED score 4/5 group (Fig.7)

Functional connectivity

- Increased functional connectivity is associated with resistance to standard treatment

CONCLUSION

- Baseline EEG BASED score has both diagnostic and prognostic value
- Ineffective functional connectivity can predict treatment resistance

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